Railroad Commission of Texas

Oil and Gas Waste Stream Management, Part 1

July 28, 2021

The meeting will begin shortly.

Oil and Gas Waste Stream Management, Part 1

July 2021

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Power Point Presentation

This presentation is available for download from the RRC website at https://www.rrc.texas.gov/oil-and-gas/workshops-and-conferences/rrc-regulatory-webinars/regulatory-webinars-2021-schedule/

Environmental Permits and Support

Regulates the management methods of oil and gas waste treatment and disposal, at or near the land surface. All handling, storage, treatment, recycling, and disposal methods, other than injection wells.

Topics for Discussion

- Waste Hauler Permits
- Recycling of Domestic Wastewater
- Hydrostatic Test (HT) Discharge
- Landspreading
- Authorized Recycling
- Pits

Waste Hauler Permits

Form WH-1 (1 of 2)

- **The WH-1 must include**:
  - Operator Name and Address
  - P-5 Organization Number
  - RRC Districts you will be transporting waste
  - RRC Districts where trailers will be housed
  - Make sure there is an **original signature**, digital/e-signatures **Not** accepted

Form WH-1 (2 of 2)

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
Environment Permits
P.O. Box 12967
Austin, TX 78711-2967

APPLICATION FOR OIL AND GAS WASTE HAULER'S PERMIT

WH-1
Rev 4/94
WWW-1

TYPE OR PRINT USING BLACK OR BLUE INK **READ INSTRUCTIONS BELOW**

1. Hauler name and address exactly as shown on P-5 Organization Report, including city, state and zip code.

2. Hauler P-5 Organization No.

3. Purpose of filing ☐ Initial permit application
☐ Amendment of permit no. _____
☐ Annual renewal of permit no.

4. Number designation of all Railroad Commission districts where the hauler will pick up, transport or dispose of wastes.

5. Number designation of all Railroad Commission districts with yards where hauler vehicles are housed.

CERTIFICATION: I certify that I am authorized to make this application, that this application was prepared by me or under my supervision and direction, and that the data and facts stated herein are true, correct, and complete to the best of my knowledge. If the above-named hauler is a corporation, I further certify that it is either subject to and not delinquent on the State of Texas Franchise Tax or exempt from or not subject to the tax.

Signature _____ Name (type or print) _____

Title _____ Phone _____ Date _____

INSTRUCTIONS

Form WH-2 (1 of 2)

- **WH-2 must include:**
  - Operator Name
  - WHP Permit Number
  - Vehicle information
    - Make/Model/Year of Vehicle
    - Serial/Vin Number
    - Capacity/Units
    - License Plates
  - Original signature

Reminder: We do **Not** permit the trucks that haul the trailers

Form WH-2 (2 of 2)

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
Environmental Services
P.O. Box 12967
Austin, Texas 78711-2967

OIL AND GAS WASTE
HAULER'S LIST OF VEHICLES

WH-2
Rev. 4/94

INSTRUCTIONS: To be completed by the oil and gas waste hauler and filed with the Commission in Austin either

- with the WH-1 for new permit applications, or
- by itself at any time to add vehicles to an existing permit's Attachment A.

NOTE: For the purposes of this form, "vehicle" means any truck tank, trailer tank, vacuum tank, dump truck, garbage truck, or other container in which oil and gas waste will be hauled by the oil and gas waste hauler.

Hauler name (exactly as shown on P-5 organization report)	☐ initial filing ☐ additional vehicle for permit no.	total no. of vehicles	page ___ of ___

Vehicle Make/Model/Year	Serial No.	Capacity (units)	Current Vehicle License No.

Form WH-3

- The WH-3 must be submitted by the **Waste Hauler Operator**

- Items 1-4 are to be completed by the **Waste Hauler Operator**

- Items 5-10 are to be completed by the **System Operator** (the disposal well/facility)
  - Waste Hauler Operator must be permitted in same district as facility

Form WH-3 Items 1-4 (1 of 2)

Items 1-4 are to be completed by the **Waste Hauler Operator** and include:

- The Waste Hauler Operator Name
- The Waste Hauler Operator P-5 Number
- The Waste Hauler Permit Number
- The Waste Hauler Address as filed with the P-5 Department

Form WH-3 Items 1-4 (2 of 2)

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
Environmental Services
P.O. Box 12967
Austin, Texas 78711-2967

OIL AND GAS WASTE HAULER'S AUTHORITY TO USE APPROVED DISPOSAL/ INJECTION SYSTEM

WH-3
Rev. 4/94

TYPE OR PRINT USING BLACK OR DARK BLUE INK

READ INSTRUCTIONS ON BACK

I. To be completed by the hauler (1-4)

1. Hauler name (as shown on WH-1 Application for Oil and Gas Waste Hauler's Permit)	2. Hauler P-5 organization no.	3. Hauler permit no., if assigned
4. Hauler address (including city, state, and zip code)		

II. To be completed by the system operator (5-10)

Form WH-3 Items 5-10 (1 of 2)

Items 5-10 are to be completed by the **System Operator** and include:

- The System Operator Name as shown on their P-5
- The System Operator P-5 Number
- The System Operator Address as filed with the P-5 Department
- The Disposal/Injection Well Information
- The Disposal/Systems/Facility Information
- Must be signed by System Operator

Form WH-3 Items 5-10 (2 of 2)

II. To be completed by the system operator (5-10)

5. System operator name (exactly as shown on P-5 organization report)	6. System operator P-5 organization no.

7. System operator address (including city, state, and zip code)

8. **Disposal/Injection Wells.** Identify exactly as shown on H-10 Annual Disposal/Injection Well Monitoring Report.

RRC Dist. No.	Field Name / Lease Name	Oil Lease or Gas ID No.	Well Number	UIC Control Number	Check One: non-commercial	Check One: commercial
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐

9. **Other Disposal Systems.** Identify exactly as shown on system's Commission-granted permit.

Dist.	Facility Name and County	RRC-Assigned Permit No.	Type of System
			☐ Land Farm ☐ Pit ☐ Landfill ☐ Other (Specify)
			☐ Land Farm ☐ Pit ☐ Landfill ☐ Other (Specify)
			☐ Land Farm ☐ Pit ☐ Landfill ☐ Other (Specify)

10.CERTIFICATION OF SYSTEM OPERATOR

Signature _____ Name (type or print) _____

Title _____ ( ) Phone No. _____ Date _____

I certify that the waste hauler named above is authorized to dispose of oil and gas waste at the systems identified on this form; that I am authorized to make this report; that this report was prepared by me or under my supervision and direction; and that the data and facts contained herein are true, correct and complete to the best of my knowledge.

RRC USE ONLY

Waste Hauler FAQ (1 or 3)

- **How much is the fee for a WHP?**
- The fee is $250 for an initial permit, renewal or a name change
- Make checks or money orders payable to:
  - **Railroad Commission of Texas**
- Credit card payments call 512-463-6882
- To amend the WH-2 or WH-3 (add/remove trailers or disposal sites) no fee is required

Waste Hauler FAQ (2 of 3)

- **What forms are required to issue a WHP?**
- WH-1
- WH-2, with at least one trailer having an original license plate.
- WH-3, Must also be filed unless disposing at a disposal operating under a minor permit issued by the commission or disposing of the waste out of state.

Waste Hauler FAQ (3 of 3)

- **Must I renew my P5 and WHP annually?**
- The Organization report (Form P-5) and WHP both require annual renewals.
- These are two separate processes handled by different sections. Please mail applications separately as the applications are processed by different sections.

Waste Hauler Conclusion

For Waste Hauler Questions

- Jason Hollinger
  - Jason.Hollinger@rrc.texas.gov
  - 512-463-7371
- Waste Hauler email
  - waste_haulers_permit@rrc.texas.gov

Recycling of Domestic Wastewater

Intro to Domestic Wastewater

Recycle treated domestic wastewater/waste streams generated from mobile drinking water treatment systems

Waste streams include

- Treated domestic wastewater
- Mobile drinking water treatment system wastewater

Two recycling options

- Down-hole operations
- Surface application

Domestic Wastewater (1 of 3)

- Permits are valid for **60 days**
- There is a **one-time extension**
- Domestic Wastewater Application Worksheet found on RRC website
- We do not permit anything more than 60 days prior to start of treatment

Domestic Wastewater (2 or 3)

Filling out the Domestic Wastewater Application Worksheet:

- Operator Name, P5 Number, and Address
- RRC District and County
- Field and Lease Names
- Well Number(s) and Drilling Permit Number(s)
- Latitude/Longitude in Decimal Degrees
- Name of Contractor providing treatment services **AND** unit number of the trailer

Domestic Wastewater (3 of 3)

Filling out the Domestic Wastewater Application Worksheet:

- Type of waste stream, estimated volume of waste received, and estimated treated effluent volume
- Indicate the storage method of wastewater before recycling
- The re-use method of wastewater after treatment
- Precautions taken to minimize exposure to the waste
- Estimated time frame

Domestic Wastewater Conclusion

Submit applications and copies of the drilling permits to domestic.wastewater@rrc.texas.gov

For Recycling of Domestic Wastewater Questions

- Environmental Permits and Support
  - 512-463-3840

Hydrostatic Test (HT) Discharge

Intro to HT Discharges (1 of 2)

A Minor Permit to Discharge HT Water is required if:

- The wastewater resulting from the hydrostatic testing of natural gas, crude oil, or other pipelines or tanks or other vessels under jurisdiction of the RRC when discharged to land surface

A Minor Permit to Discharge HT Water is Not required if:

- The hydrostatic test water will be disposed in an authorized manner other than discharge

Intro to HT Discharges (2 of 2)

If **All** the following are met, a permit is **Not** required:

- New gathering line
- Quality water source (potable or irrigation well)
- Discharge volume is less than 10,000 gallons
- Discharge is in the right-of-way and the surface owner does not object

HT Application (1 of 2)

File the application with Technical Permitting in Austin

- Only complete applications will be accepted

If the discharge is to Surface Water

- If HT wastewater will reach surface water, you must apply for a discharge permit from the Texas Commission for Environmental Quality (TCEQ). Please visit the TCEQ website for information about Oil and Gas Wastewater

HT Application (2 of 2)

The HT Application must:

- Use the Operator Name and Address as filed with the P-5 Department
- Include the P-5 Organization Number
- Include an original signature

HT Application Review

Administrative Review

- The first 15 days of review are Administrative only
- Technical Permitting will communicate all application deficiencies to the operator during this time
- Most permits are issued within 30 days

HT Permit Issuance

The Permit is valid for sixty days

- May be extended upon operator's request

The Permit will include sampling and/or reporting requirements if:

- The volume of discharge is over 100,000 gallons
- Use of a temporary wastewater storage system, such as frac tanks (regardless of the volume of the discharge)

HT Analytical Report

The discharge effluent must be tested for and meet the criteria specified in the table below

PARAMETER	LIMITATIONS
Benzene	0.5 mg/L
Oil & Grease	15 mg/L
Chemical Oxygen Demand	Report
Electrical Conductivity	Report
Total Suspended Solids	Report

Landspreading

Introduction to Landspreading

Landspreading

Treatment and disposal of low-toxicity wastes in which wastes are spread and mixed into the soils to promote reduction of organic constituents and dilution and attenuation of metals.

Permit Types

- Land Apply
- Landfarm
- Landtreatment

Landspreading Factors

Landspreading Factors:

- Berms surrounding all cells (minimum two feet)
- Soil grain size and thickness (20 inches, slope <5%)
- Runoff, Overloading, Precipitation and Evaporation
- Depth to Groundwater
- Distance from surface water features and 100-year floodplain

Land Apply

Land Apply

Produced Water and Gas Plant Effluent

Alternative to Discharge

Land Apply Factors

- Treatment of the wastewater
- Waste application method (Sprinkler System)
- Waste loading rate (bbl/acre/day).
- Analysis of the wastewater

Landfarm and Landtreatment

Landfarm

Water-based drilling muds/cuttings

Landtreatment

Oil-based drilling muds/cuttings

Landfarm/Landtreatment Factors

- Thickness of waste, depth and tilling frequency
- Anticipated waste types and volumes
- Landfarms require estimated chloride concentrations

Authorized Landfarming

Landfarming Authorized by Rule:

- Wastes disposed of on the lease where they are generated
- Written consent of the surface owner
- Water base drilling fluids with a chloride concentration below 3000 mg/L
- Drill cuttings, sands and silts obtained while using water base drilling fluids with a chloride concentration of 3000 mg/l or less
- Wash water used for cleaning drill pipe and other equipment at the well site

Authorized Fluid Recycling

Introduction to Authorized Recycling

The Railroad Commission of Texas (RRC) encourages recycling of oil and gas waste.

- Common Waste Types for Fluid Recycling:
  - Produced Formation Fluid
  - Fracture Flow-Back Fluid
  - Completion/Workover Fluids
    (Used Drilling Fluids / Used Drilling Muds)

Authorized Fluid Recycling (1 of 2)

A permit from the RRC is Not required if:

- The fluid is treated by a lease or drilling unit operator, and the fluid is treated on an RRC Commission designated lease or drilling unit with drilling permit
- The fluid is treated by a facility that is not subject to the jurisdiction of the RRC
  - Example: Drilling mud manufacturers subject to the jurisdiction of the TCEQ
- The resultant treated fluid is distilled water

Authorized Fluid Recycling (2 of 2)

Fluid Recycling Authorized By Rule

- Some recycling of fluids under the jurisdiction of RRC may be treated and reused without a permit as authorized by Statewide Rule 8 (d)(7)(B) and Chapter 4, Subchapter B §4.202(d)

  – **Non-Commercial Fluid Recycling (NCFR)**

  – **On-Lease Commercial Fluid Recycling**

Non-Commercial Fluid Recycling (1 of 3)

Non-Commercial Fluid Recycling

- Non-commercial Fluid Recycling is authorized by Statewide Rule 8 and include the recycling of fluids produced from an oil and gas well.
  - Produced Formation Fluid
  - Workover Fluid
  - Completion Fluid
  - Hydraulic Fracturing Flow-Back Fluid

Non-Commercial Fluid Recycling

- Non-commercial Fluid Recycling is authorized by Statewide Rule 8 if the recycling activities are located:
  - On a Railroad Commission designated lease or drilling unit associated with a drilling permit
  - On land leased or owned by the operator for the purposes of operation of a non-commercial disposal well or a non-commercial injection well

Non-Commercial Fluid Recycling (3 of 3)

Non-Commercial Fluid Recycling

- The operator may treat the fluids or contract with a person/company for the treatment of fluids
- The operator may accept fluids from other leases and or operators.

Non-Commercial Fluid Recycling Pit

- Storage of fluid for Non-Commercial Fluid Recycling, or the treated recyclable fluid
- Backfill within 120 days of cessation of use

NCFR Pit Design

Non-Commercial Fluid Recycling Pit

- Pit Design:
  - Sufficiently large and have adequate freeboard for precipitation (two feet minimum)
  - Designed to prevent stormwater from entering
  - Constructed with dikes that are structurally sound and do not seep
  - Lined with a liner that has a hydraulic conductivity 1.0×10^{-7} cm/s or less

NCFR Pit Monitoring

Non-Commercial Fluid Recycling Pit

- Monitoring:
  - Records of monitoring must be kept to demonstrate compliance
  - Emptied and inspected at annually

    OR
  - Have a double liner and leak detection system that is monitored at least monthly

NCFR Pit Notice

Non-Commercial Fluid Recycling Pit

- District Notification - Operator must provide written notification prior to construction or, prior to use for an existing pit
  - Location of the pit with lease name and number or drilling permit number
  - Latitude and Longitude coordinates
  - Dimensions of the pit and maximum capacity
  - A signed statement that the operator has permission from the surface owner for construction and use of the pit

On-Lease Fluid Recycling (1 of 2)

On-Lease Commercial Fluid Recycling

- On-Lease Commercial Fluid Recycling is authorized by Chapter 4, Subchapter B if the following are true:
  - Recycling takes place on a lease with a commercial disposal well or injection well
  - The operator of the commercial well is responsible for all activities, including the recycling, that occurs on the lease

On-Lease Fluid Recycling (2 of 2)

On-Lease Commercial Fluid Recycling

- Requires written notification to the RRC District Office within seven days before recycling operations begin
  - Notification must include description of fluid control and containment
- Requires written notification to the RRC District Office within seven days of operations concluding

On-Lease Fluid Recycling Pit

On-Lease Commercial Fluid Recycling Pit

- Any pit associated with On-Lease Commercial Fluid Recycling activities must be permitted and require financial security (Form H-11)

- If the pit is located Off-Lease, the operation is no longer authorized by rule and would require a permit (Division 5 and 6)

Pits

Introduction to Pits

Disposal or storage of oil and gas wastes in a pit should be allowed only if the activity does not result in the waste resources and the pollution of surface and subsurface water

Pit Categories:

- Authorized
- Non-Commercial
- Commercial

You have a Pit If…

You have a pit if…

- It's in contact with the ground but not an above ground storage tank
- If it's below grade
- If it's a concrete structure that cannot be moved quickly and easily to check for leaks
- If it's a steel containment ring with a liner
- If it's a "sump" larger than 500 gal

Authorized Pits (1 of 2)

Authorized Pit Types:

- Reserve and Mud Circulation Pit
- Completion / Workover Pit
- Basic Sediment Pit
- Fresh Makeup Water Pit
- Water Condensate Pit
- Non-Commercial Fluid Recycling (NCFR) Pit

Authorized Pits (2 of 2)

Authorized pits

- Statewide Rule 8 authorizes the use of several types of pits without a permit. Use of the pits without a permit is authorized if:
  - The pit is operated and backfilled according to the requirements in the rule, and
  - The pit does not cause pollution
- The operator must notify the appropriate RRC District Office

Non-Commercial Pits

Non-Commercial Pit Types

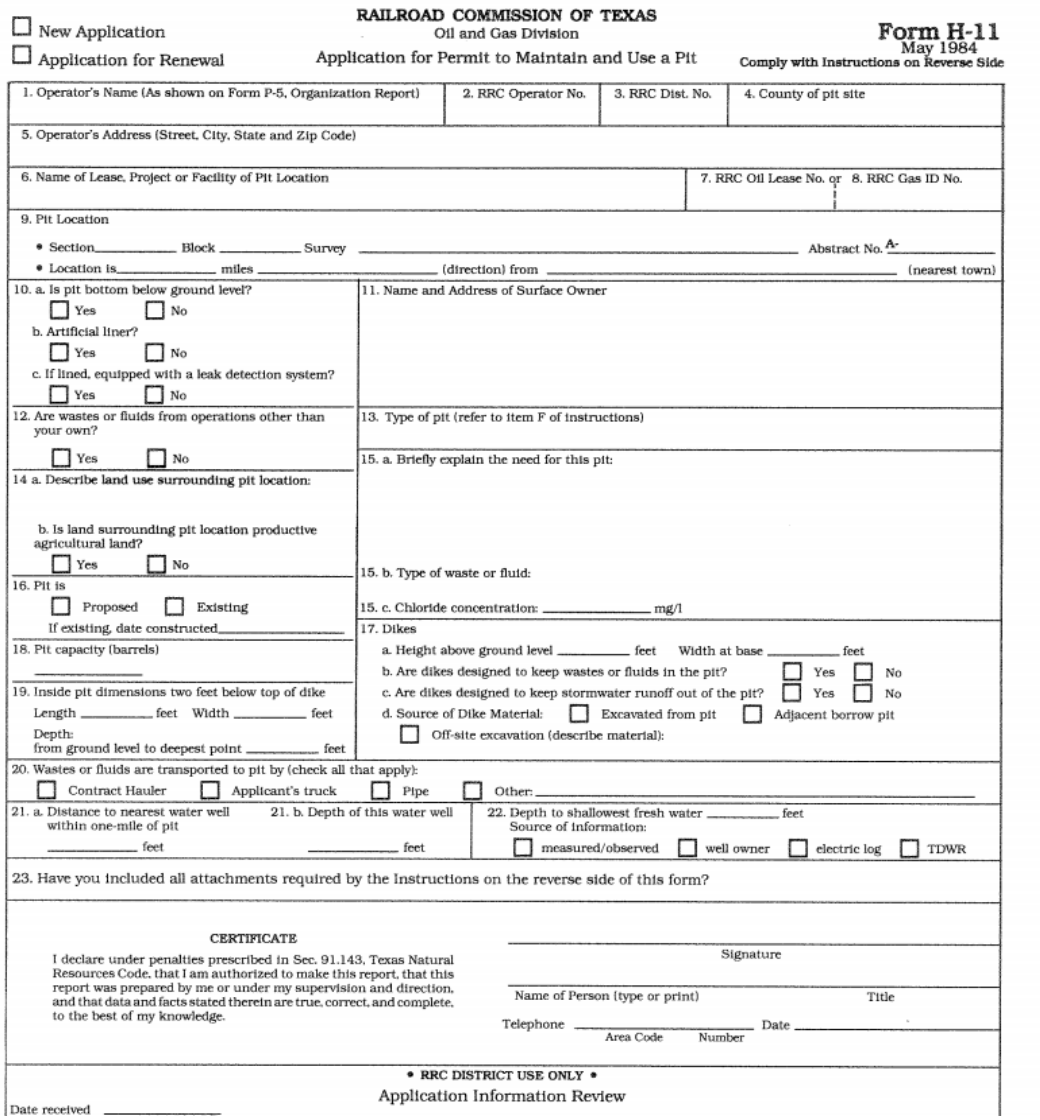
- Collecting Pit
- Emergency Saltwater Storage Pit
- Gas Plant Evaporation/Retention Pit
- Brine Pit
- Stand-alone Washout Pit
- Skimming Pit

Permitted Pit Factors

Permitted Pit Factors:

- Local hydrology and geology
- Form H-11, completed front/back
- Liners, concrete or dual lined with leak detection
- Plan View and Two perpendicular cross sections
  - Berm design
  - Minimum two feet freeboard
- Pit designed to store waste above ground level must be designed under seal of PE
- Property ownership

Form H-11 Front



☐ New Application
☐ Application for Renewal

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
Application for Permit to Maintain and Use a Pit

Form H-11
May 1984
Comply with Instructions on Reverse Side

1. Operator's Name (As shown on Form P-5, Organization Report)	2. RRC Operator No.	3. RRC Dist. No.	4. County of pit site
5. Operator's Address (Street, City, State and Zip Code)			
6. Name of Lease, Project or Facility of Pit Location		7. RRC Oil Lease No. or	8. RRC Gas ID No.

9. Pit Location
- Section_____ Block _____ Survey _____ Abstract No. A-_____
- Location is_____ miles _____ (direction) from _____ (nearest town)

10. a. Is pit bottom below ground level? ☐ Yes ☐ No
b. Artificial liner? ☐ Yes ☐ No
c. If lined, equipped with a leak detection system? ☐ Yes ☐ No

11. Name and Address of Surface Owner

12. Are wastes or fluids from operations other than your own? ☐ Yes ☐ No

13. Type of pit (refer to item F of instructions)

14 a. Describe land use surrounding pit location:

b. Is land surrounding pit location productive agricultural land? ☐ Yes ☐ No

15. a. Briefly explain the need for this pit:

15. b. Type of waste or fluid:

16. Pit is ☐ Proposed ☐ Existing
If existing, date constructed_____

15. c. Chloride concentration: _____ mg/l

17. Dikes
a. Height above ground level _____ feet Width at base _____ feet
b. Are dikes designed to keep wastes or fluids in the pit? ☐ Yes ☐ No
c. Are dikes designed to keep stormwater runoff out of the pit? ☐ Yes ☐ No
d. Source of Dike Material: ☐ Excavated from pit ☐ Adjacent borrow pit
☐ Off-site excavation (describe material):

18. Pit capacity (barrels)
_____

19. Inside pit dimensions two feet below top of dike
Length _____ feet Width _____ feet
Depth:
from ground level to deepest point _____ feet

20. Wastes or fluids are transported to pit by (check all that apply):
☐ Contract Hauler ☐ Applicant's truck ☐ Pipe ☐ Other: _____

21. a. Distance to nearest water well within one-mile of pit
_____ feet

21. b. Depth of this water well
_____ feet

22. Depth to shallowest fresh water _____ feet
Source of information:
☐ measured/observed ☐ well owner ☐ electric log ☐ TDWR

23. Have you included all attachments required by the Instructions on the reverse side of this form?

CERTIFICATE

I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this report, that this report was prepared by me or under my supervision and direction, and that data and facts stated therein are true, correct, and complete, to the best of my knowledge.

_____
Signature

Name of Person (type or print) Title

Telephone _____ Date _____
Area Code Number

• RRC DISTRICT USE ONLY •
Application Information Review

Date received _____

Form H-11 Back

Instructions to Pit Application
Authority: Statewide Rule 8, Water Protection

A. File the application, including all attachments, with the Railroad Commission, Oil and Gas Division, P.O. Drawer 12967, Capitol Station, Austin, Texas 78711. On the same day file one copy of the application and its attachments with the appropriate District Office. This form is not required for a minor permit.

B. Notify the surface owner of the land where the pit will be located by mailing or delivering a copy of the application form, both front and back, but excluding the attachments. If the land where the pit is proposed is within corporate limits, also notify the city clerk or other appropriate city official. If application is for renewal of an existing permit, notice is not required.

C. Attach a plat showing the size of the lease or tract and the location of the pit within the lease or tract. Give approximate perpendicular distance to nearest intersecting lease/unit lines and section/survey lines.To avoid confusion, distinguish between the two sets of lines. Indicate scale on this plat.

D. Attach a county highway map (scale: 1" = 4 miles) showing the location of the pit. County highway maps are available from the Texas Department of Highways and Public Transportation, P. O. Box 5051, Attn: Map Distribution File D-10, Austin, TX 78763.

E. If application is for renewal of a permit for an existing pit, attach a copy of your current authority to use the pit.

F. Identify the type of pit in item 13 using one of the following as defined in Statewide Rule 8(a): Emergency Saltwater Storage Pit, Collecting Pit, Gas Plant Evaporation/Retention Pit, Brine Pit (located at underground hydrocarbon storage facilities only), Saltwater Disposal Pit, Skimming Pit, Washout Pit, Drilling Fluid Disposal Pit, Drilling Fluid Storage Pit, or other (specify in item 13 and explain in item 15a).

G. Attach a drawing of two perpendicular, sectional views of the pit showing the pit bottom, sides, dikes and the natural grade. For an existing pit, dimensions below fluid level may be approximated.If the pit length and width are irregular, include a top view to show pit dimensions and dike widths. Indicate scale on all views.

H. If pit is lined, attach data on liner material, thickness, and installation procedures.

I. Attach an identification and description of the soil or subsoil that will make up the pit bottom and sides. The information shall describe the soil by typical name, appropriate proportion of grain sizes, texture, consistency, moisture condition, and other pertinent characteristics. (Example: clayey silt, slightly plastic, small percentage of fine sand, firm and dry in place.) Identify the source of soil information. Information on how to classify soils is available from the District Office or Austin Office upon request. If application is for renewal of a permit for an existing emergency saltwater storage pit or a lined pit with a leak detection system, this attachment is not required.

J. If pit is equipped with a leak detection system, attach engineering design drawing of the pit and leak detection system.

K. If lined pit is not equipped with a leak detection system, describe procedures for periodic maintenance and determining liner integrity, including any special monitoring.

L. If pit is an emergency salt water storage pit, attach justification for pit size based on water production, lease water storage capacity, and anticipated well or equipment shut-down time.

Conclusion

Questions?

Environmental Permits and Support:

512-463-3840

Jason Hollinger: Jason.Hollinger@rrc.texas.gov

James Bolton: James.Bolton@rrc.texas.gov

Heidi Beyer: Heidi.Beyer@rrc.texas.gov

Evaluation & Archive Video

Evaluation

- Please complete the evaluation available on the RRC website at https://survey.alchemer.com/s3/6403402/2021-RRC-Regulatory-Webinars-Oil-Gas-and-Pipeline-Safety-Evaluation

Archive Video

- A link to the archive video of the webcast will be available on the same webpage as the presentation.